UNION CARBIDE

INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX P, OAK RIDGE, TENNESSEE 3

To (Name) S. S. Stief
Division
Location K-1001, MS 141

Date June 1, 1978
Originating Dept.
Answering letter date

Copy to T. G. Fortney
H. P. Witschi
Industrial Hygiene - RC

Subject Toxicology Studies of Inorganic Compounds

As we discussed in our meeting of May 31, 1978, OSHA is still anticipating publishing and beginning public hearings on a proposed standard for nickel compounds in late '78 or early '79. As you well know, the proposed standard will apply to all inorganic nickel compounds although there is no experimental or epidemiological data that suggests comparable toxicity of all forms of inorganic nickel. Because this standard can have a major impact on ORGDP, and in fact all Nuclear Division activities, it is essential that UCC and DOE are well prepared to respond to the proposed document during the public hearings.

Among the types of information that is still necessary is basic animal toxicity studies comparing various inorganic nickel compounds. As you know, Dr. H. P. Witschi submitted a proposal to us on March 13, 1978, outlining an inhalation toxicity study of four inorganic nickel compounds. Although this study has not yet been funded, it is necessary that we make every effort to initiate work in this general direction. For a relatively small amount, approximately $20,000, Dr. Witschi can begin a number of preparatory studies for the inhalation toxicity studies he proposed. In addition, should funding not be available for the original study, the work that could be conducted for $20,000 would provide very valuable information in its own. In addition, this information should be essentially available by late this year.

The smaller study, which would be conducted by Dr. Witschi, would be to administer four nickel compounds to rats by intratracheal instillation. The compounds to be used are metallic Ni, NiO, $NiCl_2$, and Ni_3S_2. This would provide for the comparison of elemental nickel and insoluble and soluble nickel compounds with a nickel compound for which some toxicology data exists, namely Ni_3S_2. No place else in the literature has a study of this type been conducted and is basic to determining the overall toxicology of nickel compounds. These experiments would provide preliminary information on how long nickel can be expected to be retained in appreciable amounts within the respiratory tract. In addition, it would provide for acute and subacute disposition of the materials throughout the

bodies and selective histopathology could also be conducted on each of the animals. This information is necessary for associating the specific activity the nickel compounds in the animal system. It would also provide for a considerable amound of the initial screening and dose ranging studies to be accomplished for the future inhalation toxicology studies as they are conducted.

Should you have any questions related to this study, please do not hesitate to contact me directly.

R. D. Gilmore

RDG:cyw